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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/549,429	09/15/2005	Kiyoto Takizawa	AK-N-508XX	9502
207 7590 07/17/2007 WEINGARTEN, SCHURGIN, GAGNEBIN & LEOVICI LLP TEN POST OFFICE SQUARE BOSTON, MA 02109			EXAMINER KERN, KEVIN P	
			ART UNIT	PAPER NUMBER
			1725	
			MAIL DATE	DELIVERY MODE
			07/17/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

10/549,429

**Applicant(s)**

TAKIZAWA ET AL.

**Examiner**

Kevin P. Kerns

**Art Unit**

1725

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 May 2007 and 15 June 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte* Quayle, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3,7-9 and 13 is/are rejected.
- 7) ☒ Claim(s) 2,4-6 and 10-12 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 September 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102/103***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1, 3, 7-9, and 13 insofar as definite (in view of the 35 USC 112, 2<sup>nd</sup> paragraph rejections) are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Yamada (US 2003/0051851).

Yamada discloses a melting and feeding method and apparatus of solid metallic raw material in a metal molding machine, in which the method (as applied to the apparatus shown in Figure 1) includes the steps of providing a metallic raw material (cylindrical metal rods R comprised of aluminum, magnesium, or an alloy of these metals, all of which exhibit thixotropic properties at a temperature in a solid-liquid coexisting temperature range – paragraph [0007]) into a cylindrical shape after cutting/removing cavities and impurities from the surface of metallic raw material R; inserting the cylindrical metallic raw material R as a molding material (in an unheated, non-thermal expansion state) into a melting cylinder (preheating section 3) provided vertically above a heated holding cylinder (vacuum heating section 4); semi-melting or completely melting the cylindrical metallic raw material R by heaters 9 surrounding the melting cylinder 3; and providing a small clearance (e.g. < 1.0mm) between the inner circumferential surface of the melting cylinder 3 and the outer circumferential surface of the cylindrical metallic raw material R to account for the (higher) linear thermal expansion of the cylindrical metallic raw material R in comparison to the (lower) linear thermal expansion of the melting cylinder 3 (abstract; paragraphs [0001], [0007]-[0014], [0028]-[0048], [0088], and [0111]-[0113]; and Figures 1, 9, and 12). Although the linear thermal expansion coefficient of the melting cylinder (normally comprised of stainless steel or other steels of high melting temperature) would necessarily be lower than the

linear thermal expansion coefficient of the cylindrical metallic raw material (zinc, magnesium, their alloys etc. of much lower melting temperature), one of ordinary skill in the art would have recognized that the use of other metallic raw materials of low melting temperatures (and low linear thermal expansion coefficients) would be possible for use in the melting cylinder, such that (if not an inherent property) routine experimentation would have been conducted by one of ordinary skill in the art to obtain optimum clearance values between the inner circumferential surface of the melting cylinder and the outer circumferential surface of the cylindrical metallic raw material to account for the (higher) linear thermal expansion of the cylindrical metallic raw material in comparison to the (lower) linear thermal expansion of the melting cylinder, whereas high melting temperature metallic raw materials of high linear thermal expansion coefficients would not only lack thixotropic properties, but also would not be suitable for the melting cylinder, as excessive heating of high melting temperature metallic raw materials (approaching the melting temperature of the melting cylinder) would increase the probability of damage to the melting cylinder.

***Allowable Subject Matter***

5. Claims 2, 4-6, and 10-12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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6. The following is a statement of reasons for the indication of allowable subject matter: the prior art fails to teach or suggest that the melting cylinder includes the combination of a funnel-shaped bottom portion that connects to a body portion of the melting cylinder, and an auxiliary heating member provided laterally in a lower portion of the body portion adjacent to the bottom portion of the melting cylinder, such that both ends of the auxiliary heating member are fixed to a body wall, with the auxiliary heating member being operable to partially support and to provide contact heating of the bottom surface of the cylindrical metallic raw material (dependent claim 2).

### ***Response to Arguments***

7. The examiner acknowledges the applicants' amendment/remarks and statement regarding common ownership received by the USPTO on May 16, 2007 and June 15, 2007, respectively. The amendments/remarks overcome prior objections to the priority, specification, and claims, as well as prior 35 USC 112, 2<sup>nd</sup> paragraph rejections. The statement of common ownership of US 7,165,599 and the present application has been acknowledged, and thus the prior 35 USC 102/103 rejections based upon US 7,165,599 have been withdrawn. Allowable subject matter for claims 2, 4-6, and 10-12 remains (see above sections 5 and 6). Claims 1-13 remain under consideration in the application.

8. Applicants' arguments with respect to claims 1, 3, 7-9, and 13 have been considered but are moot in view of the new ground(s) of rejection.

**Conclusion**

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Kevin P. Kerns whose telephone number is (571) 272-1178. The examiner can normally be reached on Monday-Friday from 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jonathan Johnson can be reached on (571) 272-1177. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Kevin P. Kerns *Kevin Kerns* 7/14/07  
Primary Examiner  
Art Unit 1725

*KPK*  
kpk  
July 14, 2007